

The background of the slide is a photograph of a coastal landscape. It features steep, green grassy cliffs that drop down to a rocky shoreline. The ocean is a deep blue, and white waves are crashing against the base of the cliffs, creating a misty spray. The sky is a clear, pale blue with a few wispy clouds. The overall scene is one of natural beauty and coastal erosion.

# Does Randomization "Wear Out"?

**Presented by Roy Irwin**

**Water Resources Division**

**Water Professionals Meeting**

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**Fort Collins, Colorado**

# And Other Recent Guidance Changes

- Most of These are Summarized in Part B lite changes
- New Version, February 08,
- Same URL As Old Version:
- [http://www.nature.nps.gov/water/Vital\\_Signs\\_Guidance/Guidance\\_Documents/PartBLite.pdf](http://www.nature.nps.gov/water/Vital_Signs_Guidance/Guidance_Documents/PartBLite.pdf)

# Need To Re-Randomize?

- How Often?
- When the Target Population Changes
- When the Sample Frame Changes
- At Least Every 15 Years?
- More Often If Logical
- EMAP Protocols Not Designed for Long Term Monitoring

# Minimum Detectable Differences

- New More Detailed Guidance in Revised Part B lite.
- Make the Calculations
- If the Result is Not Acceptable
- Change Something (Strata, Extent of Target Population, Extent of Inference)

# Rethink Detectable Difference Goals for Trends

- 50% Change In Means in One Year?
- 40% Change In Means in One Year  
(Supt. Liked It Better)
- Or 20% Change in 5 years, or...
- Ask the Supt. And RM Staff What  
Would Be Acceptable

# Part B Lite:

- WRD Guidance for Protocols and SOPs
- Revised 2008, Contains MDD Guidance
- Irwin, R.J. 2008. Draft Part B lite (Just the Basics) QA/QC Review Checklist for Aquatic Vital Sign Monitoring Protocols and SOPs, National Park Service, Water Resources Division. Fort Collins, Colorado, distributed on Internet only)
- [http://www.nature.nps.gov/water/Vital\\_Signs\\_Guidance/Guidance\\_Documents/PartBLite.pdf](http://www.nature.nps.gov/water/Vital_Signs_Guidance/Guidance_Documents/PartBLite.pdf)

# As You Get Closer to Finalizing Protocols

- Consult with a Professional Statistician
- That Person Can Fine Tune Your Initial Estimates with Simulation and other Techniques
- But Continue to Look From Various Angles, and Refine Estimates in an Adaptive Manner